

## Consideration of the Data Quality Objectives Process and FACDQ Activities

### 1. Why are Data Quality Objectives (DQOs) important?

The DQO Process establishes performance and acceptance criteria, which serve as the basis for designing a plan for collecting information of sufficient quality and quantity to support the goals of the study. This is a critical process in any information collection effort as it can guide managers or staff in a resource-effective acquisition of environmental data.

The DQO process is flexible and iterative and can apply to CWA activities such as reasonable potential determinations, compliance assessments and ambient monitoring.

### 2. What are data quality indicators (DQIs)?

DQIs result from the seven step DQO process and are observable measures that determine if DQOs have been achieved. DQIs are specific measures of information quality, such as precision, bias, representativeness, completeness, comparability, and sensitivity. The number, type and relative importance of the indicators that we select to define the quality of our information varies and depends on the end use. Information such as environmental data may be used to determine compliance with a standard, to compile data to set a standard, describe the performance of a measurement method, characterize the nature and extent of pollutants in the environment either qualitatively or quantitatively at a particular facility or site, characterize discharges for an entire industry or water body, or set measurement quality objectives (MQOs) for an analytical method, environmental measurement, or environmental decision.

### 3. How do DQIs differ from MQOs?

DQIs may be qualitative or quantitative whereas MQOs are always quantitative statements of DQIs, e.g. a reporting limit will be defined as the concentration at which the precision and accuracy of a measurement meet specific numerical limits. When measurement results deviate from the MQOs the extent and reasons for the deviation are documented to the extent possible, and confidence in the decision to be made may be adjusted accordingly.

It is also important to consider MQOs relative to available analytical technology. MQOs should be set according to the DQO process outcomes and if available analytical technology does not meet the desired MQOs the MQOs must be adjusted and hence the uses of the information must be adjusted.

Relationships between Quality Terms are shown in Table One.

**Table 1. Definitions and Relationship Between Quality Terms.**

Study or Data Parameter.	Relationship	Abbreviated Definition.
<b>Data Quality Objectives Process (DQOP)</b>	Yields and describes DQOs, DQIs and MQOs	The DQO Process establishes performance and acceptance criteria, which serve as the basis for designing a plan for collecting information of sufficient quality and quantity to support the goals of the study. Process produces DQOs, describes criteria for DQIs, and specifies MQOs that will be used as the basis for information collection.

<b>Data Quality Objectives (DQOs)</b>	Defined in the DQOP	Study Objectives such as estimation or decision making.
<b>Data Quality Indicators (DQIs)</b>	Described by the DQOP	DQIs are specific measures of information quality, such as precision, bias, representativeness, completeness, comparability, and sensitivity.
<b>Measurement Quality Objectives (MQOs)</b>	Defined in the DQOP and by DQIs	Individual MQOs, are numeric criteria for project DQIs.